

## Cross-Media Learning for Image Sentiment Analysis in the Wild

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VGG-19

B-T4SA

Conv.

Layers

**FIXED** 

FC Layers

**TRAINED** 

VGG-T4SA

FT-F

(pretrained on ILSVRC12)

We fine-tuned four DCNN

models using B-T4SA (a

balanced subset of T4SA)

B-T4SA

All Layers

**TRAINED** 

VGG-T4SA

FT-A

B-T4SA

Dataset

B-T4SA

All Layers

TRAINED

Hybrid-T4SA

FT-A

**Twitter Testing** 

Dataset [1]

HybridCNN

B-T4SA

Conv.

Layers

FIXED

FC Layers

TRAINED

Hybrid-T4SA

FT-F

(AlexNet pretrained on ILSVRC12 + Places)



T4SA dataset, trained models, more experimental results and visual examples available at

# 回货搬 www.t4sa.it

#### GOAL

To build good sentiment classifiers for images minimizing the human effort

#### EXISTING APPROACHES

Based on datasets that are either:

- SMALL data is expensive to label manually
- BIASED data is selected to be easily labelled

#### CONTRIBUTIONS

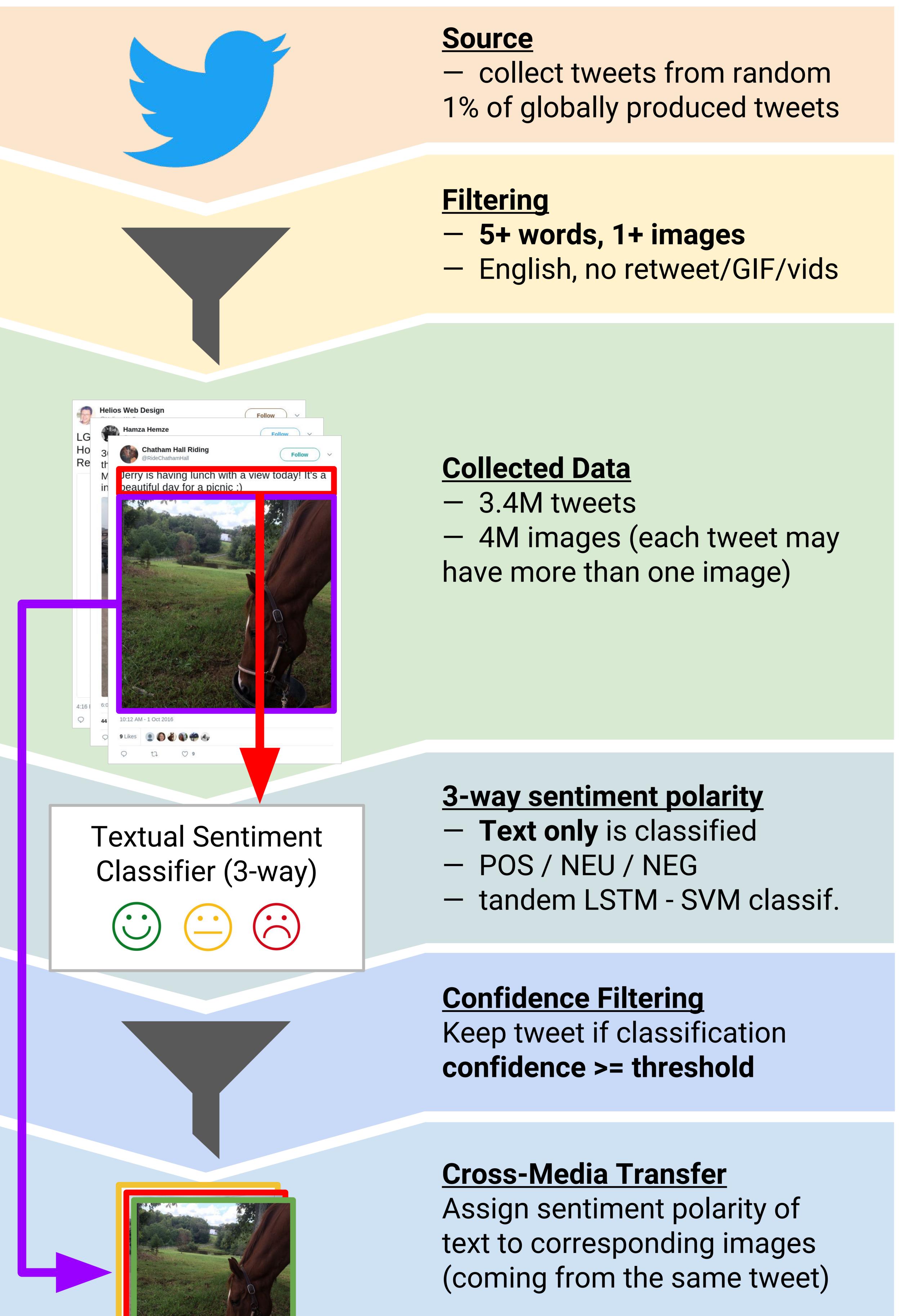
We propose a fully automatic pipeline to create datasets and train DCNNs exploiting data "in the wild" coming from Twitter and cross-media label transfer.

classifiers thus obtained outperform state-of-the-art models on manually labelled test sets used in visual sentiment analysis literature.

#### We also release:

- resulting dataset (named T4SA)
- trained models

[1] You Q, Luo J, Jin H, Yang J. Robust Image Sentiment Analysis Using Progressively Trained and Domain Transferred Deep Networks. In AAAI 2015 Jan 25 (pp. 381-388).



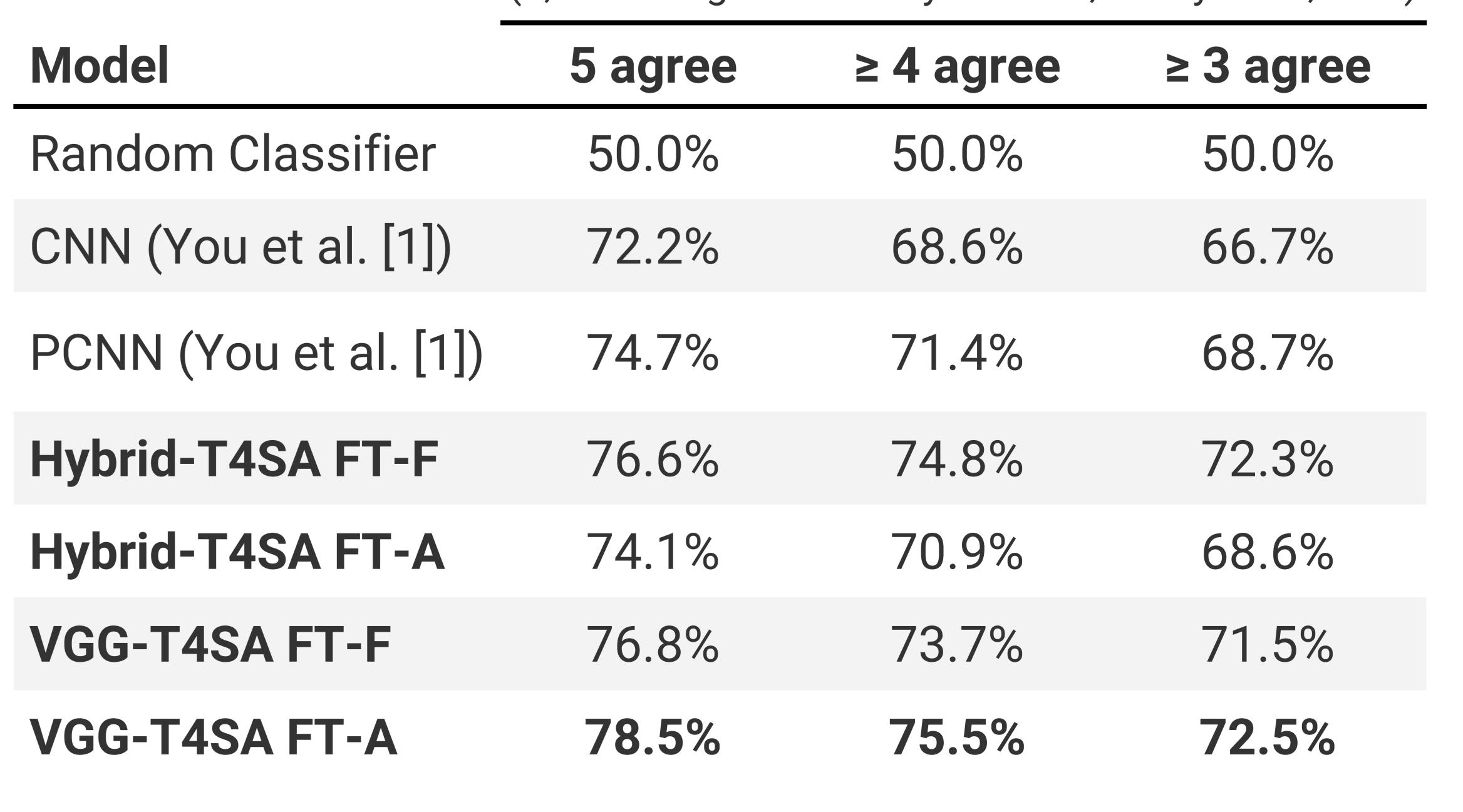
#### **Twitter Testing Dataset [1]**

We evaluated our models using

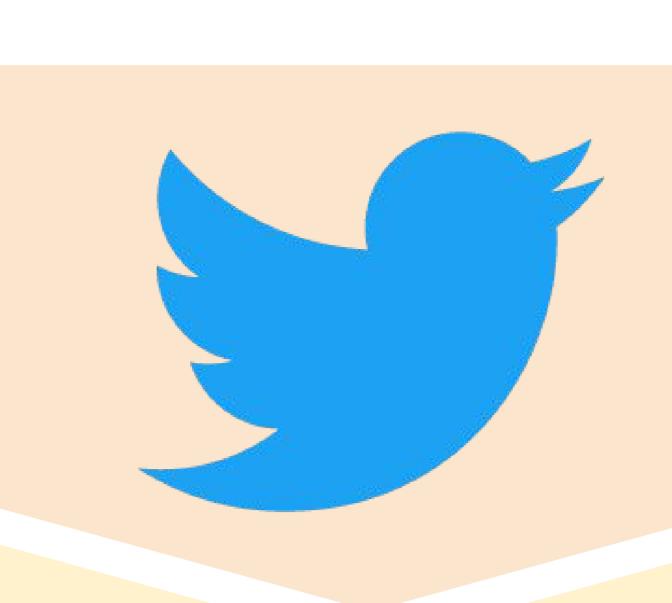
manually labelled datasets used in

visual sentiment analysis literature

(1,269 images manually labelled, 2-way: POS, NEG)



# images	T4SA	(Balanced) B-T4SA
	372,904	156,862
	444,287	156,862
	156,862	156,862
TOTAL	974,053	470,586



Near-duplicate

Removal

### Cleaning

Remove near-duplicate images

	# images	T4SA	B
T4SA Dataset		372,904	1
		444,287	1
		156,862	1
	TOTAL	974,053	<b>4</b>